which Government propose to procure light reactors and under what terms and conditions;

(c) the reasons of procuring such items from the foreign countries and whether it will have adverse affect on our Nuclear installations; and

(d) if so, the details thereof?

THE MINISTER OF STATE IN THE MINISTRY OF EXTERNAL AFFAIRS (SHRIMATI VASUNDHARA RAJE): (a) Yes, Sir.

(b) An Inter Governmental Agreement (IGA) was signed between the Government of India and the erstwhile Soviet Union in November 1988. The IGA provided for the construction of 2 x 1000 MWe VVER type Nuclear Power Station in India on a turn-key basis by the Soviet organisations. Owing to political developments in the erstwhile USSR in August 1991, the activities came to a standstill but negotiations continued. As a result of continued negotiations, a "Supplement" to the IGA of 1988 was signed between the Republic of India and the Russian Federation on June 21, 1998 to incorporate the revised terms for the implementation of the project on technical co-operation basis instead of on a turn-key basis. Further, the work on preparation of the Detailed Project Report (DPR) is in progress.

(c) and (d) Since India is self-reliant in Pressurised Heavy Water and Reactor (PHWR) techology, the proposed reactors based on Light Water Reactor (LWR) technology are being imported in order to increase India's technical capabilities in diverse fields of nuclear power generation. Therefore this proposal will not have any adverse effect on our nuclear installations. Moreover, the proposed reactors are of ! 000 MWe capacity, and addition of single units of large capacity would enable the country to meet the growing needs of power.

Design and Execution of Nuclear Power Plants

2055. SHRI VEDPRAKASH P. GOYAL: Will the PRIME MINISTER be pleased to state:

(a) whether the country is self-sufficient in design and execution of Nuclear Power Plants;

(b) what is the smallest size of plant recommended;

(c) whether the safety level of our nuclear plants is comparable to international yardsticks;

(d) if so, the details thereof;

(e) with design and all materials being indigenous and technical persons being cheaper, why does the Nuclear Power Plant cost more than the Hydel Plant; and

(0 whether the cost analysis open to public or it is a secret, if so, the details thereof?

THE MINISTER OF STATE IN THE MINISTRY OF EXTERNAL AFFAIRS (SHRIMATI VASUNDHARA RAJE): (a) Yes, Sir.

(b) From the Narora Atomic Power Station onwards, 2 X 220 MWe units have been standardised for indigenous nuclear power plants.

(c) Yes, Sir.

(d) According to the reports of the World Association of Nuclear Operators (WANO), the safety performance of all Indian atomic power plants are comparable to and even better than the average value of safety for atomic power plant world wide. The Indian atomic power plants are operated in a very reliable and safe manner and have been operated safely for more than 150 reactor operating years without any single radiological accident as defined in the International Nuclear Event Scale (INES) which facilitates yet another comparison with international standards. Further, the regulatory practices followed in India are modelled on the codes and standards published by the International Atomic Energy Agency. The regulatory authority i.e. Atomic Energy Regulatory Board has implemented the latest recommendations of the International Commission on Radiological Protection (ICRP) on the dose limits to radiation workers.

(e) A nuclear power station is capital intensive due to various items of equipment which are necessary for achieving the mandatory safety requirements.The design and operation of nuclear power stations technology-wise is more complex than hydel plants.

(0 There is no secrecy regarding cost analysis. The cost details of all the nuclear power stations are submitted to the Central Electricity Authority (CEA) for fixation of the tariff like any other central sector power station.

Nuclear Energy as alternate energy source

2056. SHRI VEDPRAKASH P. GOYAL: Will the PRIME MINSITER be pleased to state:

(a) when was the first Nuclear Power Plant installed in our country;

(b) what were the projections and what has been the performance;

(c) whether Government agree that with depleting resources at fossil fuels, the nuclear energy provides the right solution;

(d) if so, why the progress has been very slow in this regard; and

(e) what proposals exists with Govemment in this regard, if not, the reasons therefor?

THE MINISTER OF STATE IN THE MINISTRY OF EXTERNAL AFFAIRS (SHRIMATI VASUNDHARA RAJE): (a) In 1969 at Tarapur in Maharashtra.

(b) A three stage developmental strategy was adopted for the Nuclear Power Production. In this strategy the first stage is that of Pressurised Heavy Water Reactors and the second and third stages are those of plutonium based reactors and thorium based reactors respectively. The present capacity of power generation in the country through Nuclear energy is 1840 MWe.

(c) Yes, Sir.

(d) The progress has been slow due to resource constraints during the 1990s.

(e) The following is the projection of the programme for nuclear power generation during the Ninth Five Year Plan and beyond the Ninth Five Year Plan, subject to available financial resources.

Details of reactors/units	Total Capacity (MWe)
I. *Upto Ninth Five Year Plan*	
(1) Operating reactors 2 BWRs of 160 MWe each & B PHWRs (1 x 100, 1 x 200, 2 x 170, 4 x 220 MWe)	1840
(2) Reactors under construction (4 PHWRs of 220 MWe each)	880
(3) Reactors sanctioned and work commenced (2 PHWRs of 500 MWe each)	1000
(4) Reactors awaiting sanction (2 PHWRs of 220 MWe each, 2 VVERs of 1000 MWe each and 1 PFBR of 500 MWe)	2940
	6660
II. *Beyond the Ninth Five Year Plan (int a preliminary stage, to be firmed up based on resources*	
(1) Reactors for which advanced procurement action is to be taken	1440
(2) Reactors in the planning stage	
(i) 10 PHWRs of 500 MWe each	5000
(ii) 4 FBRs of 500 MWe each	2000
(iii) 5 LWRs of 1000 MWe each	5000
TOTAL	13440
GRAND TOTAL	20100